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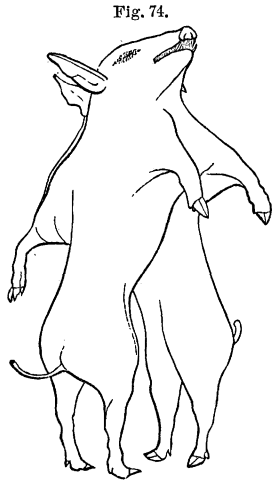
the same locality. It had been previously detected in Guysborough, Nova Scotia.

Crepis aurantiaca, formerly called *Hieracium aurantiacum*, appears to be naturalized in some places in Saco, Maine. It occurs in grounds adjoining a nursery, where it is associated with *Ajuga reptans*, a labiate plant. Probably both plants were introduced in the material employed in packing foreign trees.

ZOOLOGY.

A REMARKABLE MONSTROSITY.—I submit the history, anatomical examination and physiological peculiarities of this case of *lusus naturæ*, as one of especial interest to embryologists.

The subject, or subjects, are a pair of twin pigs united throughout the anterior abdominal, thoracical, cervical and cranial regions, having one umbilicus in common. As they now stand (Fig. 74), taxidermy having been resorted to, to preserve them, to ordinary observers, at first sight, their conjoint bodies present the appearance of two individuals standing face to face, being in juxtaposition above the umbilicus, with arms extended at right angles. Below the inferior point of union both are perfectly normal; above this region the front side* resembles the inferior part of the thorax of a normally formed hog. The back side presents the same thoracic appearance, but above it is seen the top of the head (the region posterior and between the ears in a normally formed hog) with two ears in juxtaposition at their point of junction with the head, situated in the median line, one and one-half inches posteriorly to the ones situated in the normal position.



Their external appearance, size, form and color are the same. Both are of the male sex. The head, anteriorly of the conjoint pair of ears, is normal in shape, being but slightly broader in the

*The terms front, back, etc., relate to the organization as a whole, the four posterior legs occupying the inferior position.

region of the normally situated ears than is common to this breed of hogs, the only external departure from normality being in the number of tusks, there being double the usual number. In the left side of the mouth the position of the four tusks is alternate, the anterior superior one being situated between the two in the inferior maxillary. On the right side, those in the inferior are anterior to those in the superior maxillary.

There was one sternum in common, situated on the front side; the ribs of each thorax extending about four lines behind it. On the back side the union was formed by muscular prolongations from the *latissimus-dorsi*, trapezoid and intercostal muscles.

The right pig had a right lateral curvature of the spine in the superior cervical region; the spine of the other having a double lateral curvature, the superior curve being to the left, in the dorsal region, the inferior one to right in the lumbar region.

The thoracic viscera were transposed at right angles, the right lung of each pig occupying the left side of the thoracic cavity of the other, and the left lungs being situated in the right sides of the respective thoraxes. The anterior trachea was connected with the lung situated in the left side of the right hog, and the lung situated in the right side of the left hog; the posterior trachea exhibiting a like connection with the other lungs. One lung, the one situated in the right side of the left hog, was much larger than the other three, respiration having taken place in it, the other three never having exercised that function.*

There was but one pericardium containing the two hearts.

The oral cavity, anterior to the pharynx presented a normal appearance, with the exception of the tusks, already referred to. The anterior glottis was situated normally. The posterior one was reversed in position, the epiglottis being situated on the posterior side; the œsophageal orifice being situated between the two.

In the abdomen were two livers, that of the right hog being of a pinkish hue; the other of a dark brown appearance. There was but one stomach, the œsophageal orifice being situated in the centre superiorly, the pyloric occupying a position directly opposite. The stomach, when inflated, presented the appearance of a sac, constricted throughout its centre in a vertical direction. The duodenum and jejunum were single; the latter, at its inferior ex-

* The hogs, when found, were lifeless, and were supposed to have been still-born.

tremity was bifurcated, beyond which there were two sets of viscera.

The cranial cavity was divided by a cartilaginous septum which separated the two sets of brains. Each set of spinal nerves entered its division of the cranium through its own *foramen magnum*. The cranial bones were normal in number and appearance save the occipital, which had two openings for the spinal nerve, each side of the median line, and processes for muscular attachment. The optic cavities were imperfectly formed. The eyes were not developed, a bundle of fascia with some nerve substance occupying their place.

The subject having been frozen and refrozen several times before it came into my possession, I was unable to pursue the anatomical investigation of the several structures to the extent that I desired, such processes having destroyed the cranial ganglia and nervous system, the microscope revealing the disorganized structures.

These hogs evidently had their origin in one ovum, with two nuclei or germinal centres situated equidistant from one another, and not from two ova which had become nucleally and anatomically commingled in the course of their development.—T. W. DEERING, M. D., *Leavenworth, Kansas*.

SWARMING OF A BROOD OF WINGED ANTS.—On the afternoon of Oct. 6th, at about 4 P. M. we were attracted to a part of the large yard surrounding our home, by a multitude of large sized insects that filled the air, and appeared to be some unusual form of insect life, judging of them from a distance. On closer inspection, these creatures proved to be a brood of red ants (*Formica*) that had just emerged from their underground home and were now for the first time using their delicate wings. The sky, at the time, was wholly overcast; the wind strong, southeast; thermometer 66° Fahr. Taking a favorable position near the mass, as they slowly crawled from the ground, up the blades of grass and stems of clover and small weeds, we noted, first, that they seemed dazed, without any method in their movements, save an ill-defined impression that they must go somewhere. Again, they were pushed forward, usually, by those coming on, after them, which seemed to add to their confusion. As a brood or colony of insects, their every movement indicated that they were wholly ill at ease.

Once at the end of a blade of grass, they seemed even more puzzled as to what to do. If not followed by a fellow ant, as was usually the case, they would invariably crawl down again to the earth, and sometimes repeat this movement until a new comer followed in the ascent, when the *uncertain* individual would be forced to use his wings. This flight would be inaugurated by a very rapid buzzing of the wings, as though to dry them, or prove their owner's power over them; but which, it is difficult to say. After a short rest, the violent movement of the wings would recommence, and finally losing fear, as it were, the ant would let go his hold upon the blade of grass and rise slowly upwards. It could, in fact, scarcely be called flight. The steady vibration of the wings simply bore them upwards, ten, twenty or thirty feet, until they were caught by a breeze, or by the steadier wind that was moving at an elevation equal to the height of the surrounding pine and spruce trees. So far as we were able to discover, their wings were of the same use to them, in transporting them from their former home, that the "wings" of many seeds are, in scattering them; both are wholly at the mercy of the winds.

Mr. Bates, in describing the habits of the Saüba Ants (*Ecodoma cephalotes*) says,* "The successful *début* of the winged males and females depends likewise on the workers. It is amusing to see the activity and excitement which reign in an ant's nest when the exodus of the winged individuals is taking place. The workers clear the roads of exit, and show the most lively interest in their departure, although it is highly improbable that any of them will return to the same colony. The swarming or exodus of the winged males and females of the Saüba ant takes place in January and February, that is, at the commencement of the rainy season. They come out in the evening in vast numbers, causing quite a commotion in the streets and lanes." We have quoted this passage from Mr. Bates' fascinating book, because of the great similarity and dissimilarity in the movements of the two species at this period of their existence. Remembering, at the time, the above remarks concerning the South American species, we looked carefully for the workers, in this instance, and failed to discover above a dozen wingless ants above ground, and these were plodding about, very indifferent, as it appeared to us, to the fate or welfare of their winged brothers. On digging down a few inches, we

* Naturalist on the River Amazons, Vol. 1, p. 32.

could find but comparatively few individuals in the nest, and could detect no movements on their parts that referred to the exodus of winged individuals, then going on.

On the other hand, the time of day agrees with the remarks of Mr. Bates. When we first noticed them, about 4 P. M. they had probably just commenced their "flight." It continued until nearly seven o'clock P. M., or a considerable time after sundown. The next morning, there was not an individual, winged or wingless, to be seen above ground; the nest itself was comparatively empty; and what few occupants there were seemed to be in a semi-torpid condition. Were they simply resting after the fatigue and excitement of yesterday?

It was not possible for us to calculate what proportion of these winged ants were carried by the wind too far to return to their old home; but certainly a large proportion were caught by the surrounding trees; and we found, on search, some of these crawling down the trunks of the trees, with their wings in a damaged condition. How near the trees must be for them to reach their old home, we should like to learn; and what tells them, "which road to take?" Dr. Duncan states,* "It was formerly supposed that the females which alighted at a great distance from their old nests returned again, but Huber, having great doubts upon this subject, found that some of them after having left the males, fell on to the ground in out-of-the-way places, whence they could not possibly return to the original nest!" We unfortunately did not note the sex of those individuals that we intercepted in their return(?) trip; but we cannot help expressing our belief that, at least, in this case, there was scarcely an appreciable amount of "returning" on the part of those whose exodus we have just described; although so many were caught by the nearer trees and shrubbery. Is it probable that these insects could find their way to a small underground nest, where there was no "travel" in the vicinity, other than the steady departure of individuals, who, like themselves, were terribly bothered with the wings they were carrying about with them?—C. C. ABBOTT.

We have noticed that those females that do not return to the old nest found new ones. In Maine and Massachusetts we have for several successive years noticed the swarming of certain species

*Transformations of Insects, p. 205.

of ants during an unusually warm and sultry day early in September. See also this journal, p. 392.—Eds.

HABITS OF THE CUT WORM. — I venture to send you an item in regard to the common cut worm (*Agrotis* or dart-moth) which is new to me. A friend recently related to me the results of some extended observations which were corroborative of some another friend made not long before. He found that the cut worms would come out of the ground at about nine o'clock in the evening; they did not vary many minutes from that time in all the observations he made. He used to watch them for hours, by the light of a lantern.

Sometimes he would put a tin or wooden box around the plant, just to see what they would do, and then occurred what seemed to me the most singular part of their performance. The worm would crawl towards the plant till it came to the box, then it would follow along the side of the box to find an opening, and if none were found, it would ascend the side of the box—whether of tin or wood—to the very top; reach around in every direction, and, if nothing could be felt, would turn and go back, down the outside of the box (never on the inside), and go into the ground. Sometimes he would bend the leaf of the cabbage plant so that the worm could touch it, when it would instantly take to the plant, follow it down till it came to the root, and then commence its work, *i.e.*, gnaw the stem off, and feed on the central portion of the same. The manner in which the worm feeds upon the grape was observed to be thus:—The worm would come out of the ground at its usual time, ascend the vine till it came to a new shoot, gnaw that off, and fasten itself to the stump of the branch so gnawed, and suck the sap of the vine till it was so full it seemed almost ready to burst, then descend to the ground and bury itself out of sight.—N. COLEMAN, *Grand Rapids, Michigan*.

COMPOSITION OF SALMON. — Prof. Sir R. Christison lately communicated to the Royal Society the results of a chemical analysis of clean salmon (*i.e.*, those in good condition) and of the same species when exhausted or “foul.” A mean of several trials gave, for the clean salmon, oil 18·53 per cent., nitrogenous matter 19·70 per cent., saline matter 0·88 per cent., water 60·89 per cent.; for the foul salmon, oil 1·25 per cent., nitrogenous matter 17·07 per cent., saline matter 0·88 per cent., water 80·80 per cent.